

REPORT  
ON THE  
PACIFIC GREAT EASTERN  
RAILWAY

ITS  
ORGANIZATION AND OPERATION,  
WITH RECOMMENDATIONS

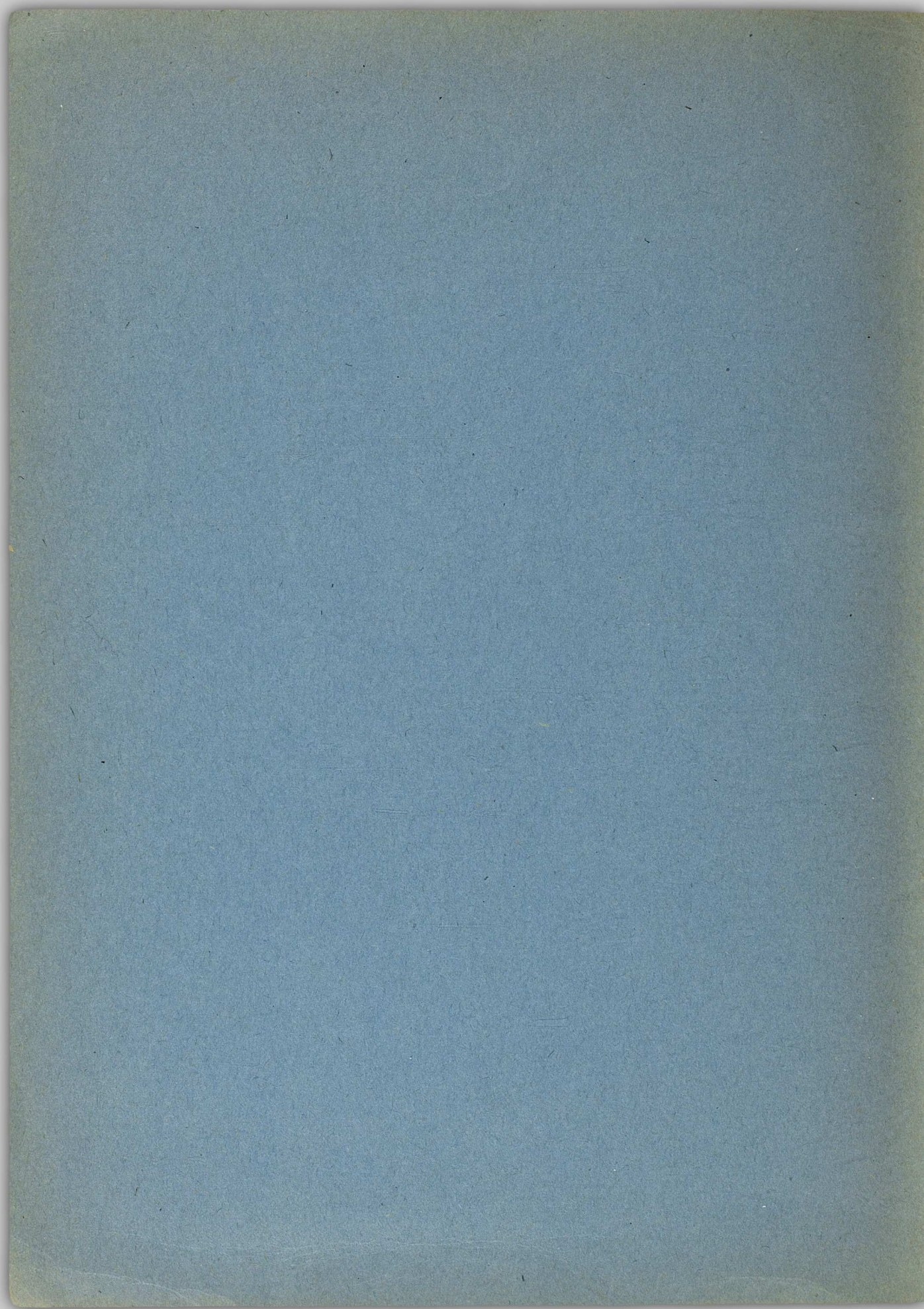
BY  
W. P. HINTON



THE GOVERNMENT OF  
THE PROVINCE OF BRITISH COLUMBIA

VICTORIA, B.C.:  
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1922.







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# Report on Pacific Great Eastern Railway.

By W. P. HINTON.

VICTORIA, B.C., April 8th, 1922.

The Hon. John Oliver,  
Presiding Director, Pacific Great Eastern Railway,  
Victoria, B.C.

DEAR SIR,—In accordance with your letter of the 21st ulto., I desire to respectfully submit a memorandum report containing my observations, analyses, comments, and recommendations pertaining to the organization, operation, and maintenance of the Pacific Great Eastern Railway.

I did not examine the entire property at this time, having been over the greater part of it previously quite critically, besides being generally familiar with the balance of the country served since, and can estimate generally the operating conditions and possibilities.

All available data were closely studied, as well as an inspection of the North Shore line and at Squamish, resulting in the report and conclusions reached in brief form in the enclosed, and in order that you may have a summary of the matter contained therein, the following may be of use:—

(1.) The officers and staff generally are capable and discharge their duties efficiently; material reductions are not practicable or are inadvisable pending development of and decision on your future policy.

(2.) Increased rates generally to provide additional revenue are not practicable. They are already so high as to bear very heavily, if not prohibitive in some cases.

(3.) Accounting, purchasing, stores, etc., departments are systematically conducted and in accordance with the best methods.

(4.) North Shore Division should be put in the tramway class to reduce operating expenses and efforts made to dispose of or abandon the line.

(5.) Squamish Division: The future operation of this line or part of it between Squamish and Clinton to be carefully considered. The low tonnage capacity of trains, the absence of traffic possibilities of an attractive nature, the difficulty of maintaining the line and in many places constantly subject to destruction, also the excessive wear on track, ties, structures, motive power, and rolling-stock, should be justified only for a heavy traffic. It is on this division that your heavy operating costs occur. The report shows that this excessive cost over normal is approximately for 1921:—

Maintenance way and structures .....	\$175,000 00
Transportation .....	50,000 00
Total .....	\$225,000 00

Exclusive of excessive wear on rails, motive power, and rolling-stock, as well as costly interruptions and delays to traffic.

The maintenance charges will now increase very rapidly, as the 16,000,000 feet of timber in bridge and trestle construction must all be renewed within the next few years or replaced by steel or concrete. The cost of these renewals may be figured in place at probably \$2,500,000, so that this sum must be figured in addition largely to present losses, as it cannot properly be charged to capital account, the latter carrying only the difference between cost of renewal in kind and the cost of permanent structures.

(6.) The construction of the line to Prince George should be proceeded with, as the material is largely paid for and delivered; economies in operation can be effected thereby and an outlet furnished by direct rail connection to reach markets, stimulating settlement wherever possible and making operations already started in the territory of the Pacific Great Eastern surer of success.

The officers and staff rendered every assistance; in fact, welcomed this opportunity of having an independent examination of their work, together with any helpful suggestions which I was able to make to them in our several discussions and inspections.



I have not reported on the physical condition of the property, except in so far as it affects the earning power and costs of maintenance and operation in its relation to the losses which have been sustained. In that respect the prospects for improvement are most discouraging.

All of which is respectfully submitted.

I have the honour to be,

Respectfully yours,

W. P. HINTON.

## Its Organization and Operation, with Recommendations.

### OPERATING ORGANIZATION.

The general officers and staff at Vancouver comprise, both in numbers and remuneration, about the minimum requirements for the bare operation and supervision of the respective departments under existing conditions, but outside of clerical assistance might easily handle a larger operation and much greater business. The office system records and other details are handled efficiently.

There is a distinct disadvantage in not being in direct personal contact with the railway operating forces, which can be obtained by the removal of some of these offices to Squamish, in which case office accommodation and housing would have to be provided. It is doubtful if sufficient saving could be effected; in fact, my belief is that the capital expense involved would easily exceed any direct saving. Further, bearing in mind that communications between Squamish and Vancouver are uncertain and involve much delay at times, it would seem advisable not to make any change in the location of the general offices from Vancouver.

A larger question arises as well in any change of this kind, for if the railway is to be connected up between Whytecliff and Squamish, it is obvious that Vancouver is the logical point for the general offices. Further, if the line is constructed between Clinton and Ashcroft, another situation would arise which would make it unwise to establish offices at Squamish.

### ORGANIZATION.

The general supervision of the operation of the property is necessary, but as this does not involve decisions on matters of general policy, the General Manager discharges the functions of a General Superintendent on other transportation systems and would more aptly describe the jurisdiction. There is nothing to be gained by making the change in title, however, and the services rendered under all the circumstances are considered satisfactory.

Mr. Buckworth has obtained a good grasp of the situation and in many directions has produced economies and eliminated waste. He is well supported by his staff.

The assignment of duties to the different members of the general staff is done to the best advantage. The salaries paid to the members of the staff are in no cases higher than their duties call for; in fact, they must be considered, generally speaking, as quite the reverse in relation to those paid for similar duties elsewhere.

### TRAFFIC DEPARTMENT.

This department is capably and economically handled. Tariffs have been examined and the different features of the traffic discussed with the General Freight Agent, including applications pending for reduction or adjustments of charges, and the methods employed in all cases appear to be sound and fair. It would not seem practicable to increase rates at present: in fact, they may bear too heavily in certain directions to make or develop traffic, but to reduce them would result in definite losses to sustain in the actual cost of handling the business.

### ACCOUNTING AND FINANCE.

The system and practice of these important divisions of the work is particularly well handled, and while some of the work might be incorporated with and under direction of the Comptroller-General of the Province, it is doubtful if much, if any, saving in expense could be accomplished. In any event, it might make a difference of one accountant less, but this I have not been able to definitely determine in the absence of Mr. Mouat.



## NORTH SHORE DIVISION.

The operating loss on this division was over \$29,000 in 1921. The prospect is no better for 1922 owing to heavy maintenance necessary and personal-injury claims. There is no prospect for improved earnings in any way encouraging. The competition from the municipal ferries and bus service is ruinous and makes a passenger service on this division largely unnecessary and superfluous. Realizing that there may be sufficient reasons for continuing to operate regular service notwithstanding probably sufficient reasons for denouncing any contracts with the municipality, immediate steps should be taken to treat this as a tramway-line, which it is, and thus get away from the standard railway wages and schedules. In this way, as a first saving, the North Vancouver staff could be reduced to an agent and assistant instead of the present Trainmaster and two agent dispatchers. Both train crews employed would also be out of standard wages and schedules. The shops seem necessary to handle the constant motor repairs and have a minimum staff for the work. The Stores Department showed careful handling except in the fuel-oils supply, which is wasteful on account of proper tanks and measuring apparatus not being furnished. A moderate capital expenditure for tanks and measuring-pumps would make a sufficient saving to warrant the expenditure.

The two gasoline motor-cars are obsolete, of a discarded type wherever previously used, and are a constant source of heavy expense for upkeep and their performance is very poor.

The entire passenger revenue on the North Shore line in 1921 was \$50,228.92 for 82,681 train-miles, or about 61 cents per train-mile. The expense was:—

For fuel .....	17 cents per train-mile.
For motor repairs .....	10       "       "
For passenger-car repairs .....	3½       "       "
Total .....	30½       "       "

Aside from overhead, wages, materials, and other supplies which might be estimated.

Other operating expenses, 33 cents per train-mile, a total cost of operation outside of any consideration for return on capital or for depreciation, which results in a direct loss.

It is quite hopeless, therefore, to expect the North Shore Division to meet expenses so long at least as the municipalities operate competing facilities.

It is not recommended that new motor-cars be obtained. If the gas-electric cars, which are of a good type, are used for all regular service, the two gas-motors being kept in reserve for emergencies, all necessary power would be available, provided an electric car-pull was provided at the ferry to take and place cars when the motor spotted them during free time between road scheduled runs. A car-pull of this type is in service at Swanson Bay and should render adequate service available at all times to prevent delays. Care must be taken to get a much stronger pull than seems necessary to ensure reliability under all conditions.

I am not dealing with the possibility of making arrangements with the British Columbia Electric Company for the operation of part of or the entire line in the event that it is decided improbable that the North Shore Division will be connected eventually with the Squamish Division. As already pointed out, this North Shore line is only a tramway and should be treated as such if practicable, as the reduction in expense would be very considerable.

## SQUAMISH.

The main wharf is in an unusable condition and it would seem useless to rebuild, as it will inevitably be expensive to maintain and assuredly be destroyed in due course owing to its situation. The car-ferry slip fortunately escaped destruction, but its situation is too precarious to hope for escape ultimately. The removal to a new and the only proper site for these wharves and slips would involve a large capital outlay not justified by prospective future development of traffic.

The working staff at Squamish is small and only sufficient to carry on operations.

The car-shops are sufficient, but need some additional equipment to perform work economically. The cost of car repairs, both freight and passenger, is quite low and must be considered as covering only unavoidable repairs and upkeep.

The engine-house and machine-shop are very badly located, and in case of fire, as there is no tail-track, it would not be possible to save any locomotives which would be in at the time. Engine repairs require additional machinery with the increase of line and motive power. Housing



space is very much too small for such machinery as is in place at present, making a crowded condition, which is far from economical and dangerous to the workmen to operate. The cost of engine overhaul and heavy repairs is low in comparison with similar work elsewhere.

It will be unwise to add to the expense at Squamish for enlarged facilities and additional machinery if the line is to be completed into Prince George in the near future, as the heavy repairs can be done there to greater advantage and with much less expense in conjunction with the Grand Trunk Pacific work.

The General Foreman at Squamish, who has charge of the motive power and equipment of the line, appears to be well above the average in ability and careful regard for economy. His outline of the arrangements made at Williams Lake for light running repairs appears to be what is barely necessary and no avoidable waste or extravagance is apparent.

The stores are sufficient, handled in approved and methodical manner.

#### FLOATING EQUIPMENT.

The revenue was .....	\$30,000 00
The cost of operation was .....	35,000 00
Loss .....	\$ 5,000 00

Bearing in mind the large quantity of company's material handled without charge, the handling of empty or non-revenue cars and interchange of equipment between the North Shore and Squamish Divisions, no fair criticism can be applied to the deficit on this operation.

#### HYDRO AND WATERWORKS.

These utilities were not examined, reports as to reliability and adequacy being favourable.

#### SQUAMISH DIVISION OPERATION.

A fair train-tonnage rating under normal conditions would be:—

##### MAIN TONNAGE.

	Cons. Locos.	Mikados.
For Squamish to Clinton .....	450	500
For Clinton to Williams Lake .....	1,000	1,200
The average train tonnage hauled was:—		
Squamish Subdivision .....		446 tons.
Lillooet Subdivision, north-bound .....		483 „
„ south-bound .....		407 „

This indicates that great care was taken to avoid unnecessary operation of trains and it must be considered very good performance. Further reference will be made to the low train-tonnage possibilities of the line between Squamish and Clinton.

#### LOSS AND DAMAGE TO FREIGHT.

This amounted in the year to four-tenths of 1 per cent. of the freight revenue. On other lines it is rarely, if ever, below  $1\frac{1}{2}$  per cent. and runs as high as 5 per cent. This reflects very favourably on the operating officials.

#### TRANSPORTATION COSTS.

An analysis of the tonnage handled and locomotive-miles run discloses the very high proportion of non-revenue traffic carried, 15 per cent. of the entire business and locomotive-miles for work-trains,  $17\frac{1}{2}$  per cent. of the total road-mileage. The result is that transportation costs are abnormally high in relation to revenue. The revenue freight-train miles aggregated 14,992 miles, the work-train mileage 13,862. Operating expenses of all trains were \$8.669 per train-mile, and as work-trains are quite as expensive to operate as others, we have a charge for transportation for work-trains of, say, \$60,000, nearly all on the Squamish to Clinton Division, which, if it could be maintained as other lines in British Columbia generally, would save probably \$50,000. This will be dealt with later.



## MAINTENANCE WAY AND STRUCTURES.

The cost of this department distributed over the average mileage operated was about \$1,200 per mile. We must consider, however, that the line north of Clinton is new and required very little expense. The charges fell almost altogether on the North Shore line and the Squamish to Clinton section. This will show a cost of about \$2,000 per mile, where, under conditions usually existing on a newly constructed line with light traffic, the charge should not be more than \$600 per mile. As a result, the excessive expenditure, quite unavoidable, is about \$175,000. This item will also be reviewed later, as well as the extra cost for maintaining equipment owing to the physical nature of the line. It will be shown that these charges will increase materially in the near future if the line is to be kept in safe operation.

## TRAFFIC.

Of the total revenue tonnage handled (53,351 tons), 20,265 tons represented logs and other rough forest products, or about 38 per cent. of the entire revenue freight traffic. Under the most favourable circumstances—that is, if a full train-load of logs of fifteen cars is handled for the maximum distance for which tariff is provided, 50 miles—the revenue will be:—

One car 6,500 feet at \$3.20 per M.,	\$20.80.	
Fifteen cars at \$20.80 .....		\$312 00
Cost of operation, all trains, \$8.669 per train mile .....		433 45
Loss per train .....		\$121 45

While much of the log traffic may be handled in regular trains, it will make no difference on this computation. The rates on logs are already high, and if increased by 50 per cent. in order to yield a net operating return to the railway they will be so burdensome as to make logging operations unprofitable. It constitutes such a large proportion of the revenue tonnage, and is within measurable distance of exhaustion in any case, with no substantial prospects of tonnage on the Squamish Division to take its place, that the prospects are discouraging, if not hopeless, in the future operation of the line, all of which has an important bearing on the future policy with regard to the continued operation of this division.

The movement of other manufactured products of the forest and mines must be severely handicapped through the necessity of high charges being made to Vancouver to place these products in competition with mills or mines more favourably situated for the local market or for direct shipment; in fact, similar conditions exist, hindering development in agriculture, settlement where possible, and establishment of the few industries which might thrive under more favourable circumstances. In other words, development and settlement cannot reach any measure of success. This will be dealt with further in the summary of the situation.

It is also noteworthy of the tonnage statistics that of the entire freight revenue traffic, 49,934 tons originated on the line and only 3,417 tons, or 6.4 per cent., on foreign lines.

The train service, twice a week, as shown in the train-tonnage figures, is barely sufficient to handle the traffic, so that no reduction is practicable.

In passenger traffic it is not recommended that tourist or other feature advertising be conducted, as the possibilities for much development are slight, and it is better to keep expenditures to a minimum in that direction, for the traffic during a relatively short season would be small, but would force expenditures in equipment and service which would be quite unjustified.

## LOCOMOTIVE FUEL.

One of the principal and most important items of cost of operation is that of locomotive fuel. The cost of fuel-oil at Squamish is \$2.15 per barrel. In relation to coal of a good bituminous quality, such as the best Island or Alberta coal, it is customary by the oil companies to estimate  $3\frac{1}{2}$  barrels of crude oil the equivalent of 1 ton of good coal. In performance it is well established that not less than 5 barrels, or slightly more, is the true equivalent, and this includes the cost of labour in handling coal, ashes, wastage, and overhead. In other words, the cost of fuel-oil, \$2.15 per barrel, is at the rate of \$10.75 for coal or more at Squamish. With the completion of the line into Prince George, furthermore, the cost of high-grade bituminous coal should not exceed \$7 to \$7.50 per ton, and the haulage will be much more favourable than from Squamish north. This fuel then can be procured cheaper at home instead of sending the money



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abroad. Under these circumstances, no further oil-burning locomotives should be purchased, and arrangements should be made to convert present oil-burners to coal.

PHYSICAL CHARACTER OF LINE IN RELATION TO OPERATING COSTS.

The comments preceding this portion of my report indicate that:—

(1.) The operating costs of the North Shore line and the Squamish Division to Clinton are so great as to preclude any possibility of net operating revenue.

(2.) Costs of maintenance and expenditure on capital account must increase. Bridge renewals and repairs outside of capital account will now increase, if the factor of mere safety is to be met, at the rate of at least \$250,000 per year, without hope of reducing other maintenance costs.

(3.) It is hopeless to expect any great increase—in fact, the tendency is for a decrease—in revenue over the line between Squamish and Clinton.

Consequently, consideration must be given to the advisability of abandoning the entire line from Squamish to Clinton when the Prince George connection is obtained or to maintain the line between Squamish and D'Arcy from that time. To possibly use salvage from the line taken up as part of the cost of constructing a line from Clinton to Ashcroft in order to give adequate and in every way suitable through connection between the southern and northern sections of the Province.

In this way the line would be preserved where there are traffic possibilities and operating costs would be normal. It would connect the line most effectively with the outside to afford markets on a favourable basis with other competitors, so that colonization and the development of industries would be possible, and, furthermore, be the means possibly of making the property more attractive to other railway-lines to lease and operate under suitable conditions, thereby relieving the people of the Province to a very marked extent of an obligation which is bearing and must increasingly become intolerably burdensome. There can be no hope of effecting arrangements to relieve the Province under present conditions and prospects, but if the connections are effected at Prince George and Ashcroft, the Province only retaining the line, if any, north of Squamish until it too can be entirely abandoned, then it should not be difficult to conclude arrangements that would meet with the general approval of the public as constituting a welcome relief from the present burden.

Respectfully submitted.

W. P. HINTON.

VICTORIA, B.C.

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